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# VEHICLE STEERING WHEEL

## TECHNICAL FIELD

The invention relates generally to vehicles and more specifically to steering wheels for vehicles, particularly trucks.

## BACKGROUND OF THE INVENTION

US 2002/0125698 A1 discloses a steering wheel with two upper and two lower spokes. Multifunctional switch modules with control buttons for remote actuation of specific vehicle functions are located between the upper and the lower spokes along an air bag module.

Since truck drivers tend to rest their arms on the steering wheel while driving, a control button may unintentionally be pressed on a steering wheel of the type disclosed in US 2002/0125698 A1.

Moreover, since steering wheels for trucks are large and the drivers want to have a clear view of the instrument panel through the steering wheel, the distance to the control buttons at a steering wheel in accordance with US 2002/0125698 A1 in a truck would be too great.

Thus, the steering wheel according to US 2002/0125698 A1 is not particularly user-friendly.

## SUMMARY OF THE INVENTION

The object of the invention is to provide a more user-friendly steering wheel, particularly for trucks, at which the risk for the driver to unintentionally touch a control button on the steering wheel is minimized.

At a vehicle steering wheel according to the invention that comprises a rim, a signal cap and two upper and two lower spokes that extend between the rim and the signal cap, the

upper spokes extending along the horizontal symmetry axis of the steering wheel towards the centre of the steering wheel, this is attained in that the two lower spokes are graspable, that the two lower spokes extend from positions around the rim that are located between 30° and 60° below the horizontal symmetry axis on either side of the vertical symmetry axis of the steering wheel, and that the lower spokes form an angle of between 62° and 82° with the vertical symmetry axis of the steering wheel.

By making the lower spokes graspable, i.e. forming them as handles, a good driving position for the driver will be enabled. Since particularly truck drivers sit many hours in the truck every day, grasping the lower spokes now and then will be a good alternative to holding on to the rim of the steering wheel or grasping the upper spokes.

Preferably, the lower spokes extend from positions around the rim at 40° below the horizontal symmetry axis of the steering wheel on either side of the vertical symmetry axis of the steering wheel.

Preferably, the lower spokes form an angle of between 67° and 77°, particularly 72°, with the vertical symmetry axis of the steering wheel.

It has been found that an inclination of the lower spokes of 72° relative to the vertical symmetry axis of the steering wheel is more or less optimal for the driver.

Preferably, a multifunctional switch module with thumb-operated control buttons for remote actuation of specific vehicle functions is located symmetrically between the two lower spokes on the steering wheel beneath the signal cap.

By placing the multifunctional switch module symmetrically between the two lower spokes beneath the signal cap, it will be easy for the driver to operate the buttons with his thumbs while grasping the lower spokes without moving his eyes from the road.

Preferably, the lower spokes are separated from the upper spokes by spaces for receiving a driver's elbows.

Hereby, it will be possible for a truck driver to rest his arms at temporary stops without running the risk of unintentionally pressing a control button on the multifunctional switch module.

**BRIEF DESCRIPTION OF THE DRAWING**

The invention will be described more in detail below with reference to the appended drawing on which Fig. 1 is a plan view of an embodiment of a vehicle steering wheel according to the invention.

**DESCRIPTION OF THE INVENTION**

Fig. 1 is a plan view of an embodiment of a vehicle steering wheel 1 according to the invention.

As most of today's steering wheels, the steering wheel 1 comprises a rim 2, a signal cap 3, and two upper spokes 4 and two lower spokes 5 between the rim 2 and the signal cap 3. In a manner known per se, the upper spokes 4 extend along the horizontal symmetry axis H-H of the steering wheel 1 towards its centre.

In accordance with the invention, the two lower spokes 5 are graspable, i.e. formed as handles to be grasped by a driver's hands.

To provide a good and relaxed driving position for the driver, particularly a truck driver, in accordance with the invention, the lower spokes 5 extend from positions around the rim 2 that are located $\alpha°$ below the horizontal symmetry axis H-H of the steering wheel 1 on either side of the vertical symmetry axis V-V of the steering wheel 1, and, moreover, the lower spokes 5 are oriented such that they form an angle of $\beta°$ with the vertical symmetry axis V-V of the steering wheel 1.

The angle α is between 30° and 60°, preferably 40°, and the angle β is between 62° and 82°, preferably between 67° and 77°, and specifically 72°.

By giving the lower spokes 5 such an inclination at such positions, it will be natural for the driver to grasp the lower spokes 5 while driving.

Also in accordance with the invention, a multifunctional switch module 6 with thumb-operated control buttons 7 for remote actuation of frequently used specific vehicle functions such as cruise control, downhill speed control and control of an information display, is located symmetrically between the two lower spokes 5 beneath the signal cap 3.

It is to be understood that other thumb-operated control buttons (not shown) can be symmetrically located in the upper spokes 4 of the steering wheel for actuation by the driver of other frequently used functions in a truck such as different radio functions with his hands grasping the upper spokes 4.

In Fig. 1, three control buttons 7 are shown on the multifunctional switch module 6. It is however to be understood that the number of control buttons 7 is in no way restricted to three.

By locating the multifunctional switch module 6 between the two lower spokes 5, the truck driver will be able to operate the control buttons 7 with his thumbs while grasping the lower spokes 5 with his hands without moving his eyes from the road.

To enable the driver to operate the control buttons 7 with both his thumbs, the control buttons 7 of the multifunctional switch module 6 are located symmetrically relative to the vertical symmetry axis of the steering wheel 1 as illustrated in Fig. 1.

To enable the driver to rest his arms on the steering wheel 2, particularly at temporary stops, e.g. at traffic lights, the lower spokes 5 are separated from the upper spoke 4 by

spaces 8 that are large enough for receiving the driver's elbows. Moreover, the spaces 8 are large enough to give the driver a clear view to instruments behind the steering wheel 1 while driving.

As should be apparent from the above, the steering wheel according to the invention is user-friendly, offers great comfort to the driver, and is "safe" in that the driver can operate control buttons on the steering wheel without moving his eyes from the road.

## CLAIMS

1. A vehicle steering wheel (1) comprising a rim (2), a signal cap (3) and two upper and two lower spokes (4, 5) extending between the rim (2) and the signal cap (3), the upper spokes (4) extending along the horizontal symmetry axis (H-H) of the steering wheel (1) towards its centre, **characterized in** that the two lower spokes (5) are graspable, that the lower spokes (5) extend from positions around the rim (2) that are located between 30° and 60° below the horizontal symmetry axis (H-H) on either side of the vertical symmetry axis (V-V) of the steering wheel (1), and that the lower spokes (5) form an angle (β) of between 62° and 82° with the vertical symmetry axis (V-V) of the steering wheel (1).

2. The steering wheel according to claim 1, **characterized in** that the two lower spokes (5) extend from positions around the rim (2) at 40° below the horizontal symmetry axis (H-H) on either side of the vertical symmetry axis (V-V) of the steering wheel (1).

3. The steering wheel according to claim 1 or 2, **characterized in** that the angle (β) that the two lower spokes (5) forms with the vertical symmetry axis (V-V) of the steering wheel (1) is between 67° and 77°.

4. The steering wheel according to claim 3, **characterized in** that the angle (β) that the two lower spokes (5) forms with the vertical symmetry axis of the steering wheel (1) is 72°.

5. The steering wheel according to any of claims 1 - 4, **characterized in** that a multifunctional switch module (6) with thumb-operated control buttons (7) for remote actuation of specific vehicle functions is located symmetrically between the two lower spokes (5) beneath the signal cap (3).

6. The steering wheel according to any of claims 1 - 5, **characterized in** that the lower spokes (5) are separated from the upper spokes (4) by spaces (8) for receiving a driver's elbows.

## ABSTRACT

A vehicle steering wheel (1) comprises a rim (2), a signal cap (3) and two upper and two lower spokes (4, 5) that extend between the rim (2) and the signal cap (3). The upper spokes (4) extend along the horizontal symmetry axis of the steering wheel (1) towards its centre. The two lower spokes (5) are graspable. They extend from positions around the rim (2) that are located between 30° and 60° below the horizontal symmetry axis (H-H) on either side of the vertical symmetry axis (V-V) of the steering wheel (1), and they form an angle (β) of between 62° and 82° with the vertical symmetry axis (V-V) of the steering wheel (1). A multifunctional switch module (6) with thumb-operated control buttons (7) for remote actuation of specific vehicle functions is located symmetrically between the two lower spokes (5) beneath the signal cap (3).

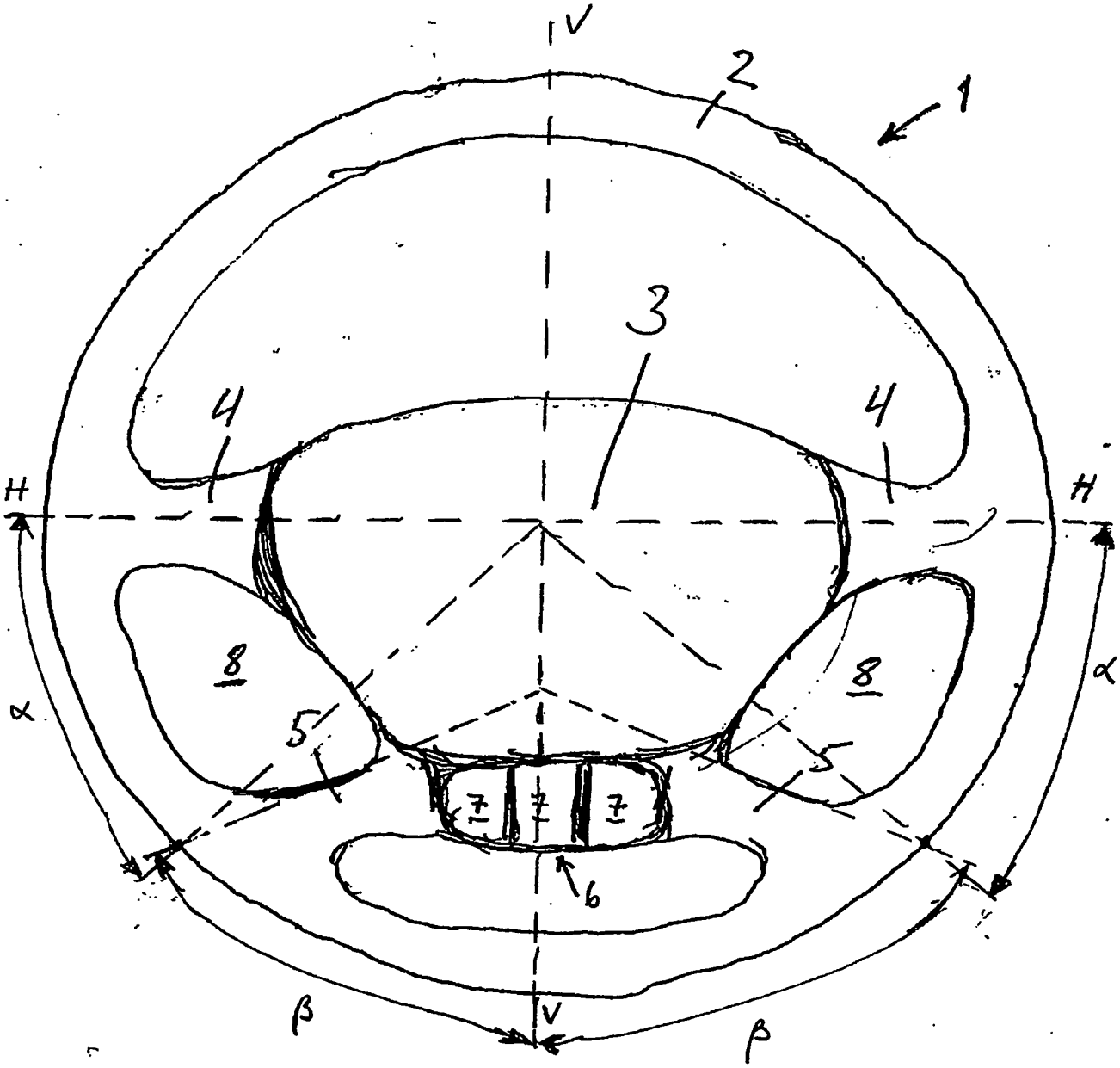


Fig. 1

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